



Pollution Prevention Program at an NNSA Site - Los Alamos

Dennis L. Hjeresen
Program Manager



LANL P2 Responsibilities

- Pollution Prevention Tracking & Reporting
 - P2E2 Measures - *post hoc*
 - Waste Volume Forecasting - *a priori*
- Awareness and Outreach
 - Awards - Internal and External
 - Communications
 - Community Outreach
- Risk Reduction
 - P2 Projects - Programmatic and GSAF
 - Environmental Management System

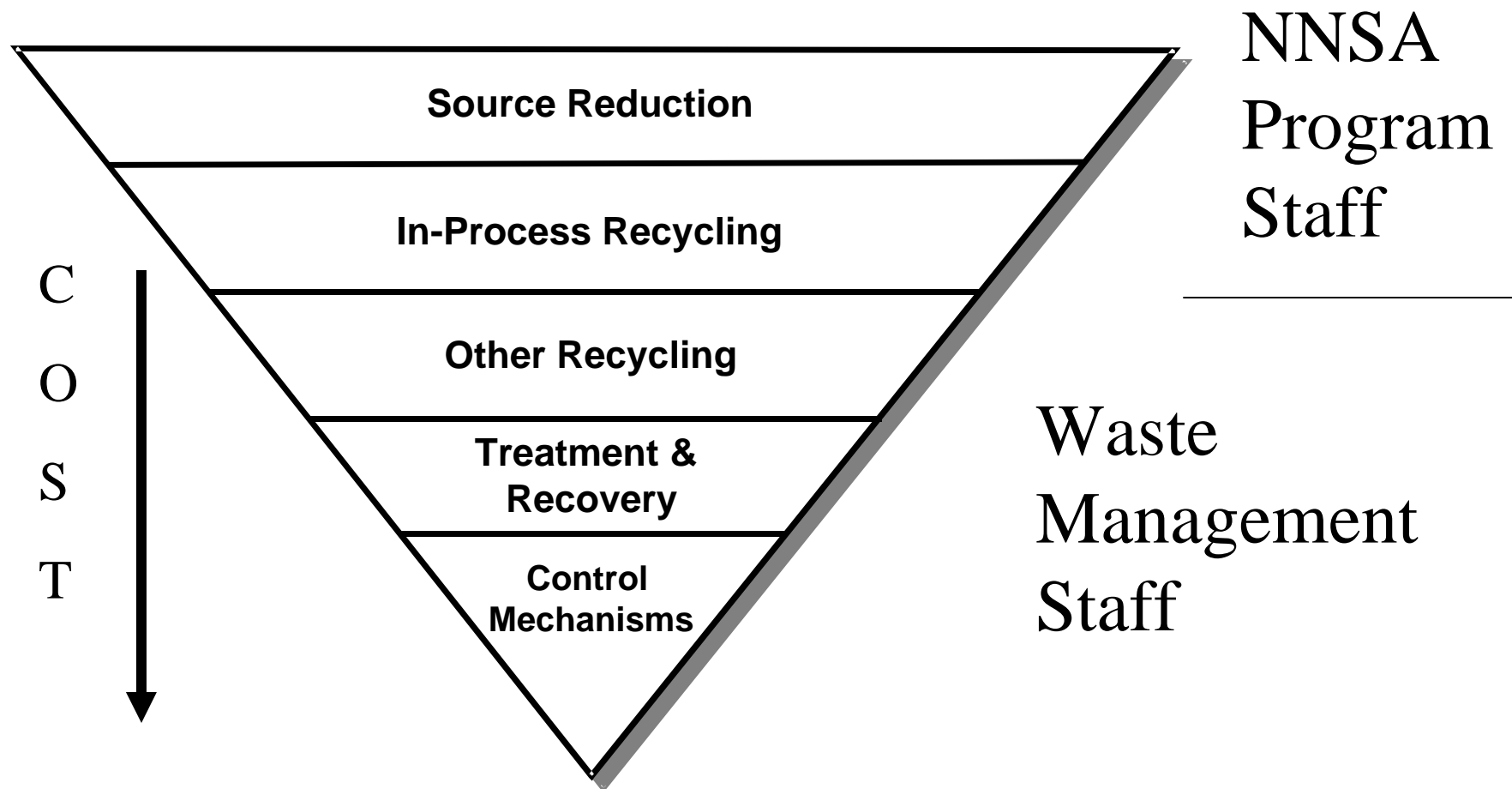


Major Philosophical Thrusts

- Change the Underlying System
 - Affirmative Procurement
 - Engineering Standards - Sustainable Design Program
 - Environmental Management System
- Reduce Risk = Upstream P2
 - Waste Elimination Projects
 - Radioactive Liquid Wastes
 - Sustainable Design

Engaging the Right People

Prevention of Pollution Hierarchy



Key P2 Performance Metrics

Goal Title	DOE 2005 Goal % Reduction	Baseline (year)	12 Month Rolling Average	2005 Goal	FY04 (12 Months)	Stoplight Indicator
Hazardous waste reduction	90%	307 MT (93)	26.0 mt	31 MT	101.7%	
LLW reduction	80%	1987 m ³ (93)	704 m ³	397 m3	80.7%	
MLLW reduction	80%	12.3 m ³ (93)	3.4m ³	2.46 m3	90.4%	
TRI Chemical Use Reduction ¹	90%	88,293 lbs (93)	16,122 lbs	8,829 lbs	90.8%	
Sanitary waste reduction ²	55%	2780 MT (93)	1500 mt	1,509 MT	101%	
Sanitary material recycling	50%	N/A	70%	50%	110%	
Cleanup/stabilization waste reduction	10%	N/A	10%	10%	100%	
Affirmative Procurement	100%	N/A	99%	100%	99%	
Replace ODS Class I chillers, >150T ³	100%	3000 T (00)	1130 tons	0	33%	
TRU Waste Minimization	50%	100 m3	73.7 m ³	50 m3	52.5%	
Overall INDEX					85.9%	



Addressing the Weaknesses

- New Waste Forecasting Project
 - 10 year projections (solid then liquid)
 - Alert customer to changes
 - Initiate projects to head off increases
- Generator Set Aside Fund
 - Focus projects on priority waste streams
- Major new Liquid Waste Thrust



GSAF Program

- \$685,000 FY04 budget
- Formal peer review process
 - End-users, waste mgmt., P2
- Prioritized criteria and ranking
 - P2E2 measures: NPF, MLLW, LLW, TRU
 - End-user proposal
- 11 FY04 projects initiated
- Institutionalize Pilot Projects



FY04 GSAF Projects

- Recycling of Lead from RCAs (MLLW)
- Contaminated Lead/Scrap Metal Abatement (MLLW)
- Solvent Reuse (HAZ)
- Barium Removal Using Ion Exchange at the HEWTF
- Implementation of Compaction/Granulation at TA-55 (LLW)
- RLWTF Waste Inventory Tracking System (RLW)
- Oil-free vacuum pumps at LANSCE Lujan Target (LLW)
- Cable Stripper for DU Contaminated Firing Site Cables (LLW)
- PF-4 Blower and Vacuum Cleaner Pre-Filters (TRU)
- Re-engineering of the Non-Compactable Low-Level Waste Stream Management Process (LLW)
- Development of Bench-Scale Molten Salt Oxidation Processes for Treating Pu-238 Contaminated Combustible Waste (TRU)



Comprehensive P2 Strategy for Radioactive Liquid Waste (RLW)

- Task I
 - Assess Radioactive Liquid Waste (RLW) Streams
- Task II
 - Prioritize RLW Projects
- Task III
 - Establish Generator Set-Aside Fund for RLW
- Task IV
 - Contribute to the Design of Future RLWTF



BTF Laundry

- Division
 - MST
- Problem
 - No Approved WAP
 - RLWTF Not Equipped for Beryllium Safety
 - RLWTF Mandates Removal in FY04
- Volume/Content
 - 120,660 TO 241,320 LPY
 - Beryllium, Surfactant
- Approach
 - Sample
 - Route to SWCS
- Expected Result
 - Removal by End of FY04





CMR Liquid Ring Vacuum Pumps

- Problem
 - Wing 2 & 5
 - Liquid Ring Pumps
 - Recirculation Loop with Bleed to RLWTF
- Volume/Content
 - 386,070 LPY
 - Silica
- Approach
 - Replace with Dry Vacuum Pumps
- Expected Result
 - Reduced Volume





Establish RLW GSAF

- PROBLEM

- GSAF Money is Generated by SOLID WASTE
- Increase in GSAF Requests by RLW Generators
- RTBF/NNSA Focus on RLW Streams
- Generator Philosophy “Open Pipe”

- SOLUTION

- FY05 Expand GSAF Collection to Include RLW
- Provide Project Funding Base for RLW
- Rates Based on Waste Stream Characteristics & Compliance with the WAC



Establish RLW GSAF

RLW Stream	Approximate Volume (MLPY)	Proposed Rate
Industrial	6-8	\$0.05/L
LLW	2-5	\$0.10/L
TRU	0.1 – 0.5	\$1.00/L
OFF-Spec w/Notice	0 - 0.2	\$0.92/L
OFF-Spec w/o Notice (NCR)	0 - 0.02	\$1.38/L
TOTAL	8.1 – 13.5	\$600,000 - \$1,611,600



Contribute to Design of Future RLWTF

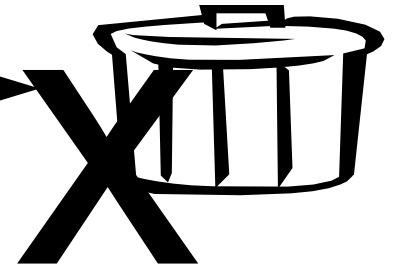
- Understand flow requirements
 - *Alternative Discharge Strategy Report for Minimization of Waste Destined for Treatment at the RLWTF -*
 - Establish P2 as contributor to facility scope
- RLWTF Design Charrette
 - Flexible design as key finding
- Key has been early and continuous involvement



Awareness and Outreach

- 2003/4 Pollution Prevention Awards
 - 76 Awards, 40+ Organizations, 400+ people
 - Total costs savings: \$7,280,652
- 2004 National Pollution Prevention Roundtable Award
- 2 - 2004 NNSA P2 Awards
 - Includes Best in Class Award
 - Convert results to community outreach

**Keep these items OUT of
LANL trash & recycle bins**



- ➔ No light bulbs
- ➔ No batteries (except alkaline batteries)
- ➔ No electronic equipment (anything with a plug or battery)
- ➔ No aerosol cans (punctured, empty cans can be recycled)
- ➔ No controlled documents
- ➔ No unboxed broken glass/sharps
- ➔ No liquids or used oil
- ➔ No radioactive waste
- ➔ No hazardous waste or PCBs
- ➔ No chemicals or empty “P” listed chemical containers
- ➔ No infectious, biological or pharmaceutical waste



Need help?

Questions?

- ➔ **Contact your WMC: Waste Management Coordinator:** fwo-swo.lanl.gov/wmc/contacts.htm
- ➔ **Contact Salvage Operations or your property manager about electronic equipment:** salvage@lanl.gov
- ➔ **Find out all you need to know about waste & recycling at:** www.recycle.lanl.gov
- ➔ **For disposal of controlled documents email:** burn-it@lanl.gov

What else can you do?

- ➔ **Invite your WMC to brief your group quarterly**
- ➔ **Discuss RCRA at Nested Safety & Group meetings**
- ➔ **Make sure hazardous waste containers are closed, labeled and dated**
- ➔ **Buy only what you need & buy recycled!**



Sustainable Design Program

- P2 Upgrades to LANL Engineering Standards
- Implementation of DX-2's HEC Building
 - Partner with User, Design and Environmental Divisions
 - *Design phase* of sustainable building design shown to significantly reduce or eliminate waste streams lead to substantial cost savings and increased worker productivity
- Four design assessments currently underway
- High-Performance Group with Sandia National Lab
 - Sharing knowledge





Key LANL P2 Selling Points

- P2 as technical mission responsibility
 - Integration of P2 into mission critical activities and budgets
 - Business arguments to promote environmental
- End User Benefit from GSAF Program
 - Core of technical implementation
- Use awards and recognition to build outreach to community
- Build into EMS as a business requirement